October 30, 2012

Bryce Bird, Director
ATTN: Mark Berger
Division of Air Quality
Utah Department of Environmental Quality
195 North 1950 West
Salt Lake City, UT 84116

Dear Mr. Bird:

The Utah Division of Air Quality ("UDAQ" or the "Division") has proposed control measures and emission limits for area and point sources within the Salt Lake City $PM_{2.5}$ Nonattainment Area ("SLCNAA"). ATK Launch Systems ("ATK") is providing the following information for consideration by the Division and the Utah Air Quality Board during the public comment period on the proposed State Implementation Plan ("SIP") for $PM_{2.5}$.

ATK appreciates the difficult challenges presented in crafting an attainment strategy for the $PM_{2.5}$ nonattainment areas located along the Wasatch Front given the high population density, the attendant mobile and area source emissions from that population, the industrial emission component in this area, and, of course, the challenging meteorological conditions. These challenges require UDAQ to implement all Reasonably Available Control Measures ("RACM") that are necessary to ensure that the $PM_{2.5}$ National Ambient Air Quality Standard ("NAAQS") is attained as expeditiously as practicable. The plan developed to meet attainment status should require control measures that are determined to be "reasonable" measures that will provide some discernible benefit to the attainment strategy.

Section 172(c) of the Clean Air Act requires that each nonattainment State Implementation Plan ("SIP") provide for implementation of RACM at existing sources. Reasonably Available Control Technology ("RACT") measures are a subset of RACM, and apply specifically to stationary sources. EPA has defined RACT as:

> the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is ***reasonably available*** considering ***technological and economic feasibility***. Therefore, depending on site specific considerations, such as ***geographic constraints***, RACT can differ for similar sources.[1]

EPA provided further clarification on RACT as it applied to $PM_{2.5}$ SIPs in its April 25, 2007

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[1] 45 Fed. Reg. 59329, 59331/1 (Sept. 9, 1980) (emphasis added) (approval of revisions to Michigan's SIP).

implementation rulemaking.[2] Under the $PM_{2.5}$ Implementation Rule, EPA determined that,

> RACT and RACM are those measures that a State finds are both ***reasonably available*** and ***contribute to attainment as expeditiously as practicable***.[3]

Accordingly, to properly be considered RACT, a measure must be shown to (i) reasonably contribute to attainment, (ii) be technologically feasible, and (iii) be economically feasible. In other words, a control measure must be shown to be "reasonable" taking into account these several factors before it will be deemed to constitute RACT for a particular source.

The Division has proposed restrictions on ATK's operations at its Promontory Operations, located in a remote section of Box Elder County. We are providing additional information that we respectfully request be evaluated as the Division and the Utah Air Quality Board finalize RACT requirements concerning small rocket motor (under 1,000,000 lbs. of propellant) testing. In particular, the ambient air quality modeling demonstrates that a single small rocket motor test would have an insignificant impact on the SLCNAA during the periods of concern and that any limitations on small motor testing should reflect these results.

I. LACK OF CONTRIBUTION

As EPA has explained, "[b]y definition, measures that are not necessary either to meet the RFP requirement, or to help the area attain the NAAQS as expeditiously as practicable, are not required RACT or RACM for such area. The EPA believes that this approach provides the greatest flexibility to a State to tailor its SIP control strategy to the needs of a particular $PM_{2.5}$ nonattainment area …."[4] Furthermore, EPA explains that, "if reductions in a given pollutant, even in large quantities, would have trivial impacts on $PM_{2.5}$, less rigor is needed in the State's assessment of controls for that pollutant, because such controls could not contribute to advancing the attainment date."[5]

EPA identified three distinct $PM_{2.5}$ nonattainment areas in Utah, including the SLCNAA. EPA included a portion of Box Elder County in the SLCNAA, even though the county itself had not registered violations of the $PM_{2.5}$ NAAQS to warrant being designated as a nonattainment area on its own. ATK requests that the Utah Air Quality Board consider the record that exists—including additional quantitative analysis that we are providing with this submission—that demonstrates that air quality impacts associated with small rocket motor testing at the Promontory Operations have a negligible contribution to the actual area of nonattainment that the plan is seeking to address.

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[2] 72 Fed. Reg. 20586, 20612 (April 25, 2007) (hereinafter "$PM_{2.5}$ Implementation Rule").

[3] *Id.* 20612/3.

[4] *Id.*

[5] *Id.* 20613/2.

ATK recognizes that EPA's designation of the SLCNAA is final and includes that portion of Box Elder County in which ATK's Promontory Operations are located; however, ATK believes that the designation does not equate to an automatic RACT determination or otherwise obviate the factors that UDAQ should evaluate in making RACT decisions. With respect to the most relevant factor—contribution to bringing an area into attainment—ATK believes that the record provides ample evidence that the Promontory Operations have negligible impacts on the actual area of $PM_{2.5}$ nonattainment within the SLCNAA. We are providing additional modeling that confirms this conclusion specific to small rocket motor testing.

Utah recommended $PM_{2.5}$ nonattainment designations did not include Box Elder County based on a number of considerations including geography, topography, and meteorology. When EPA proposed its inclusion into the SLCNAA, UDAQ responded that Box Elder County should not be included in the nonattainment area because doing so would be of no benefit to ambient air conditions in the actual area of nonattainment. Specifically, UDAQ noted that:

> *[c]oncerning the proposal to include portions of . . . Box Elder Count[y] in the single nonattainment area for the Wasatch Front, Utah recognizes that EPA, in its evaluation of the "nine factors," probably gave less weight to the actual monitored data than the State did, and arrived at a different conclusion. . . . There is really* ***nothing to be gained, in terms of air quality mitigation****, by making a designation in these areas. As pointed out in Utah's recommendation to EPA, industrial sources are not excused from emission controls simply because they choose to locate outside a nonattainment area.*
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> *On technical merit, EPA's own analysis suggest that neither Tooele nor Box Elder Counties is contributing to nonattainment in the core area. Table A.3-2 of the proposal provides the Contributing Emissions Score (CES) for each county, and on a scale of zero to one hundred, these counties ranked only two and seven respectively. By contrast, scores for Utah, Salt Lake, Davis, and Weber Counties were (again respectively): 77, 100, 100, and 60. . . .* ***Box Elder scored only seven out of a possible one hundred.*** *It would seem a low CES score would be a more reliable indicator of an area's potential contribution to ambient concentrations because the effects of geophysical boundaries would not bias the score in that direction.*
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> *Also concerning the Box Elder appendage, EPA had indicated that there will likely be an effort to "harmonize" areas of nonattainment for both PM2.5 and ozone. This area has measured ozone concentrations that are very close to the 2008 ozone standard, but only under meteorological conditions that include a steady wind from the South. This supports the notion that Brigham City is in fact being adversely impacted by the core area of ozone nonattainment. This is likely also the case with PM2.5. EPA's proposal however, presumes the opposite; that Brigham City is adversely impacting on the core nonattainment area and should therefore become part of the nonattainment area.*
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> *[T]he application of backward wind trajectories used to justify the inclusion of [Box Elder County] demonstrates a flawed understanding of meteorological processes at work in Utah. These trajectories do not recognize terrain effects or the trapping of*

the critical boundary layer, and thus are not representative of actual air flow.[6]

While EPA disagreed with UDAQ's position for purposes of setting the boundaries for the SLCNAA, we believe that UDAQ's well-reasoned analysis is instructive on the Division's consideration of what control measures are necessary to bring the SLCNAA into attainment as expeditiously as practicable. Indeed, UDAQ's ultimate conclusion that there is "nothing to be gained, in terms of air quality mitigation" speaks directly to whether additional controls on sources in these areas of Box Elder County, well removed and isolated from the actual areas of nonattainment, will have any impact on bringing the area into attainment.

More recently, UDAQ reaffirmed that, notwithstanding EPA's determination to include portions of Box Elder County in the SLCNAA, UDAQ will not abandon its analytical conclusions and obligations when making RACT determinations, explaining that, "DAQ will verify a strategy ***is necessary*** in each county before implementing it."[7] And based on this approach, UDAQ announced that "Box Elder County will not have to do everything SL County does."[8] For instance, UDAQ has already reviewed the impacts from agriculture and livestock in Box Elder County and determined that no controls of these activities are necessary for attainment of the NAAQS.[9] ATK believes that application of consistent principles would lead to a like conclusion for the Promontory Operations. It is fundamental to RACT that, if a particular control measure does not contribute to bringing an area into attainment, it cannot be said to be "reasonable."[10] Consistent with the Division's overall assessment of the impacts from sources within Box Elder County on the SLCNAA, emissions from small rocket motor tests, as discussed later, are specifically shown to have an insignificant impact on the SLCNAA and any future reductions in such emissions would not have even a marginal effect in bringing the SLCNAA core nonattainment area into attainment.

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[6] Letter from M. Cheryl Heying, UDAQ Director, to Callie Videtich, Director of EPA Region VIII's Air and Radiation Program, EPA's August 18, 2008, Proposal for PM2.5 Area Designations in the State of Utah, October 16, 2008, pp. 4-5 (emphasis added).

[7] Presentation (Box Elder/Weber), UDAQ PM2.5 Workgroup, Round 3 Meetings: April 2012, p. 2, *available at* http://www.airquality.utah.gov/Public-Interest/Current-Issues/pm2.5/pm25meetings.html.

[8] *Id.*

[9] *Id.* UDAQ has made similar statements regarding Tooele County as well.

> *Our information and modeling has become very refined, and we are seeing our challenges clearly. For Salt Lake, this means we will have to employ many strategies to succeed, while in Tooele fewer strategies are likely to be needed.*

Presentation (Tooele), UDAQ PM2.5 Workgroup, Round 3 Meetings: April 2012, p. 2, available *at* http://www.airquality.utah.gov/Public-Interest/Current-Issues/pm2.5/pm25meetings.html.

[10] "Congress clearly intended that the RACT/RACM requirement be driven by an overall requirement that the measure be 'reasonable.' Thus, the rule of 'reason' drives the decisions on what controls to apply, what should be controlled, by when emissions must be reduced, and finally, the rigor required in a State's RACT/RACM analysis. For example, we previously stated that the Act 'does not require measures that are absurd, unenforceable, or impractical' or result in 'severely disruptive socioeconomic impacts' 55 FR 38327. Moreover, we interpret the term 'reasonably available' to allow States to consider both the costs and benefits of applying the measure, and whether the measure can be readily and effectively implemented without undue administrative burden." PM2.5 Implementation Rule at 20610/1.

II. SMALL ROCKET MOTOR TESTING

Small Rocket Motor Test Modeling

$PM_{2.5}$ nonattainment episodes are primarily associated with "cold pools" when a synoptic ridge of high pressure covers the Great Basin. Cold pools consist of weak transport winds and near calm surface winds. Most of the emissions along the Wasatch Front are trapped within the cold pools and build-up while the ridge exists over the area.

ATK retained Meteorological Solutions Inc. (MSI) to perform dispersion modeling of $PM_{2.5}$ emissions from small rocket motor static tests to determine if such tests conducted on historical "red burn" days would have been a contributing factor to monitored exceedances recorded at UDAQ ambient air quality monitors (the MSI report dated September 12, 2012 is attached). The MSI modeling included five classes of small rocket motor tests: 98,000 lbs., 45,800 lbs., 25,942 lbs., 15,590 lbs. and 7,295 lbs. Results of the modeling show that small rocket motor tests would have had a negligible impact (< 0.03 $\mu g/m^3$) on county borders or UDAQ ambient air quality sites during historical "red burn" days. While modeling for rocket motors less than 7,295 lbs. was not specifically conducted, the modeling results support the conclusion that impacts associated with testing small rocket motors of less than 7,295 lbs. would be less than 0.03 $\mu g/m^3$ due to the lower emission rates associated with such rocket motors.

ATK believes that the demonstrated lack of air quality benefit associated with imposing restrictions on small rocket motor testing provides, by itself, a sufficient basis for concluding that no further control measures are appropriately determined to be RACT. Nonetheless, there are additional technical and economic reasons that provide an independent basis for concluding that such measures are not appropriately imposed as RACT for small rocket motor testing.

Technical Infeasibility

It is readily apparent that small rocket motor testing is not subject to the application of controls that other types of sources are capable of installing. For example, emissions from a rocket motor test cannot be captured and controlled by a scrubber. EPA explains that "the process, operating procedures, and raw materials used by a source can affect the feasibility of implementing process changes that reduce emissions …."[11] ATK's process and operating procedures for small rocket motor testing have unique considerations. In particular, ATK's rocket motor testing activities are generally scheduled based on the overall sequencing of the program implementation for NASA or the Department of Defense.[12] As such, ATK's schedule is

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[11] $PM_{2.5}$ Implementation Rule at 20618/2.

[12] In the preamble to the proposed $PM_{2.5}$ Implementation Rule, EPA made the following general statement pertaining to activities relating to military operations: "In addressing a nonattainment area having military training, testing and operational activities occurring within it, the State should not need to target these activities for emission reductions." 70 Fed. Reg. 65984, 66007/1 (Nov. 1, 2005). In the final PM2.5 Implementation Rule, EPA clarified that while such activities were not entirely off limit in developing nonattainment SIPs, they did deserve special consideration and consultation: "The EPA believes that in evaluating emissions for a specific nonattainment area having military activities occurring within it, the State should consult with DOD for information on the nature of these activities and their associated emissions." PM2.5 Implementation Rule at 20622/3.

controlled not by ATK itself but by a third-party with concerns for national security and defense. Scheduling for rocket motor test burns requires a highly coordinated effort among a number of contractors, subcontractors, and governmental entities. Such scheduling must necessarily be done well in advance of a rocket motor test and the need to meet subsequent program deadlines makes adherence to a scheduled test-burn critically important.[13] Furthermore, as discussed with Division staff, some small rocket motor tests must be scheduled in conjunction with remote customer sensors requiring adherence to predetermined schedules.

Economic Infeasibility

"Economic feasibility encompasses considerations such as whether the cost of a potential measure is reasonable considering attainment needs of the area and the costs of other measures, and whether the cost of a measure is reasonable for the regulated entity to bear, in light of benefits."[14] EPA also explains that if "the imposition of the measure would cause unacceptable economic disruption for the local economy, that is, a plant shutdown or a severe curtailment in plant employment or output, a State may reject the measure as not reasonable to reach attainment as expeditiously as practicable."[15] And, "[a] State need not evaluate measures in its RACM/RACT analysis that it determines are unreasonable such as measures that are 'absurd, unenforceable, or impractical' or that would cause severely disruptive socioeconomic impacts, (e.g. gas rationing and mandatory source shutdowns); such measures are not required by the Act."[16]

As discussed above, the air quality benefit to the actual nonattainment area within the SLCNAA from imposing restrictions on small rocket motor test burns is *de minimis*. The modeling of the small rocket motor test plumes show that there would be a negligible impact to the actual nonattainment area within the SLCNAA even on a "red burn" advisory day. The cost of a restriction on ATK's ability to conduct small rocket motor tests for a program essential to national security as described in 42 U.S.C 7503(e) (3) could prove unacceptably high, potentially resulting in a reduction or loss of this important segment of ATK's business while the resulting benefit to attainment would be negligible. The resulting cost-to-benefit ratio would be prohibitively high.

As discussed above, NASA and the Department of Defense programs require that rocket motor testing be conducted on a definite schedule. Absent ATK's ability to guarantee adherence to such scheduling, its ability to secure future military and aerospace contracts could be compromised. This would have an adverse impact not only on ATK's profitability but on the local economy as well in view of the significant employment associated with these contracts and

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[13] The unique nature of rocket motor testing and its importance to national security concerns is recognized by the special consideration afforded to the permitting of rocket testing facilities in nonattainment areas. Section 173(e) of the Act provides an exemption for permitting for rocket testing facilities in nonattainment areas that are essential to the national security, allowing offsetting emissions increases due to rocket motor testing through "alternative or innovative means." 42 U.S.C. §7503(e)(3).

[14] $PM_{2.5}$ Implementation Rule at 20619/2.

[15] *Id.* at 20620/1.

[16] *Id.* at 20610/1.

the impact ATK has on the local economy.

Imposing a prohibition on small rocket motor testing on "red burn" days at the Promontory Operations, well removed and isolated from the actual areas of nonattainment, would not have even a marginal effect in bringing the SLCNAA core nonattainment area into attainment. As such, ATK believes that this restriction cannot be said to be "reasonable" and is a sufficient basis for concluding that no further control measures are appropriately determined to be RACT.

III. PROPOSED MODIFICATION TO THE SMALL MOTOR TESTING RESTRICTION

For the reasons stated above, ATK believes that the record shows that small rocket motor testing has a negligible impact on county borders and UDAQ ambient air quality sites during "red burn" days. Accordingly, prohibiting small rocket motor testing on "red burn" days at the Promontory Operations, well removed and isolated from the actual areas of nonattainment, will not have even a marginal effect in bringing the SLCNAA nonattainment area into attainment. Notwithstanding the foregoing, and because the Division has expressed concerns about the potential for cumulative impacts if repetitive small rocket motor tests were to be conducted on successive days during an extended inversion period, ATK is not adverse to a restriction on multiple small rocket motor tests. Therefore, ATK is proposing for consideration by the Division and the Utah Air Quality Board the following modifications (bolded) to Subsection H.12 of the SIP- Source Specific Particulate Emission Limits for the Salt Lake City PM2.5 Nonattainment Area:

a. ATK LAUNCH SYSTEMS – PROMONTORY

i. General Conditions

A. During the period November 1 to February 28 annually, open burning reactive wastes with properties identified in 40 CFR 261.23 (a) (6) (7) (8) will be limited to 50 percent of the treatment facility's Department of Solid and Hazardous Waste permitted daily limit on days when the $PM_{2.5}$ levels exceed 35 $\mu g/m^3$ at the nearest real-time monitoring station. During this period, records will be maintained identifying the quantity opened burned and the $PM_{2.5}$ level at the nearest real-time monitoring station on days when open burning occurs.

B. During the period November 1 to February 28 annually, on days when the $PM_{2.5}$ levels exceed 35 $\mu g/m^3$ at the nearest real-time monitoring station, the following shall not be tested:

I. Propellant, energetics, pyrotechnics, flares and other reactive compounds greater than 2,400 lbs. of propellant per item; or

II. Rocket motors less than 1,000,000 lbs. of propellant per motor **subject to the following exception:**

a. **A single test of rocket motors less than 1,000,000 lbs. of**

propellant per motor is allowed on a day when the $PM_{2.5}$ levels exceed 35 $\mu g/m^3$ at the nearest real-time monitoring station provided notice is given to the Director of the Utah Air Quality Division. No additional tests of rocket motors less than 1,000,000 lbs. of propellant may be conducted during the inversion period until the $PM_{2.5}$ levels have returned to a concentration below 35 $\mu g/m^3$ at the nearest real-time monitoring station.

C. During this period, records will be maintained identifying the size of the rocket motors tested and the $PM_{2.5}$ level at the nearest real-time monitoring station on days when open burning occur.

IV. Conclusion

ATK believes that prohibiting small rocket motor testing on "red burn" days at the Promontory Operations, well removed and isolated from the actual areas of nonattainment, would not have even a marginal effect in bringing the SLCNAA nonattainment area into attainment. As such, ATK believes that the prohibition cannot be said to be "reasonable" and is a sufficient basis for concluding that no further control measures are appropriately determined to be RACT. However, ATK notes the Division's concern about the potential for cumulative impacts if repetitive small rocket motor tests were conducted on successive days during an extended inversion period where the ambient air quality would exceed 35 $\mu g/m^3$. We believe that the proposed rule modification will address the Division's concerns.

ATK is appreciative of the opportunity to participate in the development of the State Implementation Plan for the Salt Lake City $PM_{2.5}$ Nonattainment Area. We would be pleased to provide further information or address any questions that you might have. Please feel free to contact George Gooch at (801) 699-0319 or me at (801) 251-4643.

Sincerely,

Robert Ingersoll
Director
Environmental Services
ATK Launch Systems

Cc: Box Elder County Commission

Attachment: MSI modeling analysis